Table 10 The remotely sensed variable BATHYMETRY
and the listing of data types, processing requirements and costs for mapping and monitoring this variable using several suitable types of remotely sensed data. MMU: Minimum mapping unit; GRE: Ground resolution element

	DATA OPTION 1: Airborne Laser Scanning	**DATA OPTION 2: Landsat ETM (or other satellite multi-spectral)**
Spatial Dimensions		
Area to cover	Can be up to 1000km^2	185km x 185km per scene
Mapping unit	0.5m to 10m – depends on sample intensity	15m panchromatic 30m multi-spectral
Positional accuracy	????	Dependent on georef-erencing process
Temporal Dimensions		
When	User controlled	Approx 9.45am
How often	User controlled	every 16 days
Variable to map	Sea surface and seafloor height	Seafloor elevation
Environmental Restrictions	Clarity of the water column – does not work in turbid areas.	Clarity of the water column – does not work in turbid areas. In clear areas only down to 15-20m.
Processing technique **(Output)**	Ocean surface and seafloor return extraction, interpolation and ground and canopy mapping. Raster or image surface with each pixel containing an absolute elevation.	Inversion of radiative transfer model to estimate depth.
Resources – Hardware and Software	PC Image processing software GIS with image analysis capabilities.	PC Image processing software with capability to develop mathematical models and implement in image processing.
Resource – Personnel	Trained and with experience in ALS mapping. Knowledge of area to be mapped	Trained in biophysical image processing, including inversion techniques. Knowledge of area to be mapped
Estimated task and times	Image pre-processing (1 day)	Image pre-processing (1 day)

	Image analysis and DEM generation (4 days) Map output production: (2 days) Total = 10 days per scene	Image modeling and depth extraction (8 days) Map output production: (2 days) Total = 11 days per scene
Estimated Cost Note that these are estimates are flexible	Data acquisition: Image data quotes can be obtained from ALS data providers, e.g. AAM Hatch or Royal Australian Navy. Processing = 10 days of technical officer @ $875/day= 8750 Total = dependent on survey extent Note: This assumes software have been purchased	Data acquisition: Image data = $1950 Processing = 11 days of technical officer @ $875/day= $9625 Total = $11575 Note: This assumes software have been purchased